

brake operating force as recited in claim 1. To the contrary, the applicant respectfully submits that pending claim 1 provides clear definitions of the terms "primary drive force", "brake operating force" and "assisting drive force", as discussed below in detail.

Pending claim 1 is clear in that the brake operating force is a force acting on the brake operating member, and that the primary drive force is a force to be applied to the pressurizing piston of the master cylinder on the basis of the brake operating force, while the assisting drive force is a force which is applied to the pressurizing piston and which is different than the primary drive force. In a usual braking system using a brake pedal as the brake operating member as shown Figs. 1 and 15 of the present application and in the drawings of Lohberg (U.S. 4,828,332), the force applied to the pressurizing piston of the master cylinder on the basis of the brake operating force is not equal to the brake operating force, in the presence of a lever mechanism associated with the brake pedal, and a booster if provided between the brake pedal and the master cylinder. Namely, the primary drive force is different from the brake operating force, although the term "brake operating force (brake pedal force)" is generally used to mean the force applied to the master cylinder, as in the case of "the auxiliary force is generated for superimposition on the pedal force" described at col. 5, lines 32-34 in Lohberg. Strictly speaking, however, the auxiliary force described at this portion of Lohberg is superimposed on a force which is applied to the master cylinder on the basis of the pedal force.

Claim 1 further clarifies that the assisting drive force is applied to the pressurizing piston in the first direction in which the primary drive force is applied to the pressurizing piston, and is not applied to a direction opposite to the second direction in which the brake operating force acts on the brake operating member. The applicant believes that the use of the terms "primary drive force", "assisting drive force" and "brake operating force" in the claims will assist the reader of the claims in understanding the nature and construction of the recited assisting device and assisting drive force control device, and the changing means of the assisting drive force control device. A support for the primary drive force as recited in claim 1 is found throughout the specification, for example, the descriptions referring to Figs. 1 and 15, the description on page 3, lines 13-17, and the paragraph bridging pages 3 and 4, in particular.

In view of the foregoing explanations, withdrawal of the asserted rejection of claims 1, 3, 21, 36-38 and 41-43 under § 112, first paragraph is respectfully requested.

Claims 1, 35-37, 39 and 41-43 were rejected as being anticipated by Lohberg (U.S. 4,828,332). More specifically, elements of the embodiment shown in Fig. 2 of Lohberg are cited as disclosing the claimed invention. However, like elements of Fig. 1 of Lohberg, cited in earlier Actions, the cited elements of Fig. 2 of Lohberg also fail to support the asserted rejection for at least the reason that the cited elements and accompanying disclosure do not disclose an assisting device applying an assisting drive force to a pressurizing piston in a first direction in which a primary drive force is applied to the pressurizing piston, without application of a force to a brake operating member in a direction opposite to a second direction in which the brake operating force acts on the brake operating member, as required by claim 1. As discussed in the following, Fig. 2 of Lohberg shows what is essentially a doubling of the structure shown in Fig. 1, or more specifically (at least in terms of the visual depiction), the structure of Fig. 1 combined with an inversion thereof. Therefore, where the present claimed invention is concerned, the arrangement of Fig. 2 of Lohberg operates in the same way as the structure of Fig. 1 of Lohberg, and therefore cannot meet the above-noted requirement of claim 1.

More specifically, as described at col. 5, lines 29-54 of Lohberg, the embodiment of Fig. 2 is different from the embodiment of Fig. 1 in that two braking pressure generators 28, 29 each including a master cylinder 32, 34 are provided for respective two brake circuits I' and II', and two control elements 30, 31 are provided for the respective two braking pressure generators 28, 29. Further, a single control element 38 corresponding to the counteracting control element 3 of the first embodiment is provided commonly for the two control elements 30, 31.

Two separate levers 43, 44 are hinged at respective ends to a lever 5' connected to the brake pedal 2 and are held in abutting contact with drive shafts of the respective control elements 30, 31, so that auxiliary forces generated by the control elements 30, 31 are transmitted to the respective braking pressure generators 28, 29 through the respective levers 43, 44, such that the "braking pressure variation in the two brake circuits I', II' thus can be varied individually by a corresponding actuation of the control

elements ... to achieve the same braking pressure distribution as in the embodiment of Fig. 1 (col. 5, lines 38-47).

Thus, the embodiment of Fig. 2 is provided with two structures each of which is substantially identical with the structure of the Fig. 1 embodiment and which are provided for the respective two brake circuits. More to the point, each of the two structures operates in the same manner the single structure of Fig. 1, and thus cannot meet at least the above-noted claim limitation. More specifically, each control element 30, 31 in Fig. 2 is clearly not operable to apply an assisting drive force to the master cylinder piston, "without application of a force to said brake operating member (element 2 in Lohberg) in a direction opposite to a second direction in which said brake operation force acts on said brake operating member" as recited in pending claim 1. Instead, the force generated by the control element 30, 31 acts on the brake operating member in the recited direction opposite to the second direction, through the levers 43, (44), 5'. That is, the force generated by a respective control element 30, 31 acting on the other end of a corresponding lever 43, 44 causes the above-indicated hinged end of the corresponding lever to apply a counteracting force to the lever 5' and the brake operating member 2, due to a moment about the midpoint of the lever 43, 44 at which the lever is connected to the corresponding braking pressure generator 28, 29.

In view of the foregoing, Lohberg does not anticipate claim 1, nor claims 36, 37 and 41 dependent thereon.

Lohberg also fails to anticipate the invention as recited in claim 35 and claim 39 dependent thereon. Note is taken of the indication, "control provided by ECU 22", in paragraph 6 of the Office Action. However, there is no disclosure in Lohberg as to the ECU 22 "controlling an amount of the fluid in said pressurizing chamber of said master cylinder, on the basis of said brake operating condition quantity, to thereby control a relationship between a position of said pressurizing piston relative to said cylinder housing and the fluid pressure in said pressurizing chamber, for controlling a fluid pressurizing characteristic of said master cylinder" as recited in the last paragraph of claim 35. While Lohberg mentions controlling a relationship between "foot pressure" and "pedal travel", and a relationship between "braking force" and "pedal travel", there is no discussion of controlling the amount of fluid in the pressurizing chamber of the master

cylinder 7 of Lohberg on the basis of the brake operating quantity, to control the relationship between the position of the pressurizing piston and the pressure in the pressurizing chamber of the master cylinder 7.

Concerning claims 42 and 43, Lohberg does not disclose at least an assisting device which includes only one actuator operable to generate the assisting drive force, or an assisting device which does not include an actuator operable to generate a force to be applied to the brake operating member in a direction opposite to the direction of application of the brake operating force to the brake operating member, as recited in claims 42 and 43 respectively. Consequently, Lohberg does not anticipate claims 42 and 43.

In consideration of the foregoing, withdrawal of the rejection of claims 1, 35-37, 39 and 41-43 as anticipated by Lohberg is respectfully requested.

Claims 38 and 40 were rejected under 35 USC 103(a) as being unpatentable over Lohberg in view of Schramm et al. (Schramm) (U.S. 5,954,407). To support a rejection under § 103, a cited combination of references must teach or suggest all claimed elements. Claim 38 depends on claim 1 and therefore incorporates its limitations. Similarly, claim 40 incorporates the features of claim 35. As demonstrated in the above discussion, Lohberg does not teach or suggest the limitations of claims 1 and 35, and clearly Schramm does not remedy the deficiencies in Lohberg with respect to claims 1 and 35. Therefore, claims 38 and 40 are allowable over the combination of Lohberg and Schramm, and withdrawal of the asserted rejection is respectfully requested.

In light of the above discussion, Applicant respectfully submits that the present application is in all aspects in allowable condition, and earnestly solicits favorable reconsideration and early issuance of a Notice of Allowance.

The Examiner is invited to contact the undersigned at (202) 220-4323 to discuss any matter concerning this application. The Office is authorized to charge any fees under 37 C.F.R. 1.16 or 1.17 related to this communication to Deposit Account No. 11-0600.

Respectfully submitted,

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